

REMARKS

Submitted for examination were Claims 2-5, 7, and 9-13.

In the Office Action, the Examiner: (a) allowed Claim 10; (b) objected to Claims 12 and 13, but noted their allowability; and (c) rejected Claims 2-5, 7, and 11.

By this Reply paper: Claims 3, 7, 9, and 12 are canceled; Claims 2, 4, 11, and 13 are amended; and Claims 14 and 15 are newly added. Accordingly, upon entry of this Reply, Claims 2, 4-5, 10-11, and 13-15 are pending.

Entry of this Paper and reconsideration of this Application is requested.

The Office Action

Claim 10 is allowed.

The Examiner rejected independent Claim 11 under 35 USC 102, based on a prior patent to Rydborn (US-4,884,763), for reasons given. Further, the Examiner objected to Claims 12 and 13, each dependent on base Claim 11, but advised that Claims 12 and 13 would be allowable if rewritten in independent form to incorporate all of the limitations of base Claim 11 from which each depended.

The limitations of Claim 12 are incorporated into Claim 11, and Claim 12 is canceled without prejudice.

Claim 13 is amended to depend from Claim 11.

By the amendments herein, independent Claim 11 and dependent Claim 13 are submitted as being patentable and in condition for allowance.

Claims 2-5, 7, and 9 are rejected under 35 USC Section 112, first paragraph, as failing to comply with the enablement requirement. The Examiner contends that the claim(s) contain

subject matter which was not described in the Specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention. The Examiner provided further explanation for his rejection.

Claim 9 is independent, and Claims 2-5 and 7 depend therefrom. To advance prosecution, Claims 7 and 9 are cancelled.

As will be described, dependent Claims 2-5, previously dependent on Claim 1, now depend from Claim 14 newly added herein.

In the first Office Action, the Examiner rejected Claims 1 and 3-5 as being anticipated under 35 USC 102(b) by Rydborn. The Examiner contended that Rydborn taught the provision of a load cell, and that “said load cell being separate and apart from said clamping members and operable under compression to generate an output signal representative of the load placed on said load cell”.

Upon further review, the teaching of Rydborn was misunderstood and as a consequence, certain of the claims were either cancelled without prejudice (e.g., Claim 1) or amended.

Submitted herewith are new Claims 14 (essentially original Claims 1 and 3) and Claim 15.

Rydborn (US-4,884,763):

Rydborn is directed to an apparatus for generating an electric signal corresponding to thread movement in a thread brake. Movements which occur in the thread (13) on braking are transmitted to a transducer element (9) and the electric signal corresponding to thread movement is impressed on a monitoring circuit. Operation of the machine may then be arrested upon a loss of the signal.

Rydborn teaches that it is necessary that the thread pass through a signal emitter, at a certain tension, but acknowledges that it is difficult to monitor angle deflections and tension influences. (Spec., col. 1, lines 13-26).

In response to this problem, the Rydborn invention is a circuit for converting a signal corresponding to **thread movements** into a logic signal. (see FIG. 6, and Spec., col. 4, lines 47-49) A transducer unit senses movement of the thread during application of braking force to the thread by a brake element and provides an electric signal representative of a sensed movement indicating at least a signal loss, and thereby cessation of thread movement in the thread brake of the machine.

As such, Rydborn makes clear that his invention is directed to apparatus for generating a signal in response to thread movement, and senses or otherwise detects movement (i.e., motion or movement of thread), the result of losing such signal may be braking or stopping the machine. Rydborn accepts that the thread is under tension and has angular deflection, and acknowledges the problem and difficulties of monitoring these parameters. However, the Rydborn invention is concerned solely with sensing the **movement of thread** through the sewing machine.

Rydborn does not show, teach or suggest apparatus for continuously sensing, regulating, monitoring, and displaying the **tensioning force in the thread** as the thread moves through the sewing machine.

In contrast, Applicant's invention (e.g., Claims 1 and 3, as filed and/or Claim 14, newly filed herein) is directed, in part, to a thread tensioning apparatus for monitoring and adjusting the tension in a thread passing through a sewing machine during a stitching operation, comprising, inter alia, a pair of clamping members movably mounted in juxtaposition with one another and the thread for clamping with the thread passing therethrough.

Claim 14 further requires

“an electromechanical compression load cell disposed in contacting relation against one of said clamping members ... and operable under compression to generate an *output signal representative of* the compressive load placed on said load cell and the *tension in said thread*,

a comparator for receiving and comparing the output signal to a predetermined value representative of a desired thread tension and *providing a command signal* to indicate that the clamping pressure against the thread and thus *the tension in the thread is not in conformance with the desired tension*, - - -

wherein when the comparator generates a command signal that the tension in the thread is not in conformance with the desired tension the adjusting means increases or decreases the compressive force on the thread to *adjust the tension in the thread as needed*.”

In Rydborn, the output signal is representative of a sensed movement indicating at least a signal loss and thereby cessation of thread movement in the brake of the machine. There is no measuring, monitoring, or adjustment of the tension in the thread – only the generating of a signal representative of the movement of the thread in the brake.

Similarly, newly added Claim 15 is directed to a tensioning device for a sewing machine for monitoring and adjusting the tension in a thread passed through the machine during a stitching operation, which comprises:

“a ring shaped electromechanical load cell, ---, said load cell, when compressed, being operable to generate an output signal representative of the amount of *tension placed on the thread*, and means for receiving and displaying said output signal.”

The requirements of Claims 14 and 15 are not shown or suggested in Rydborn. Indeed, Rydborn acknowledges the difficulty in monitoring thread tension and deflection and thus teaches that the thread movement be sensed and monitored. Rydborn teaches away from the invention required by Claims 14 and 15.

Additionally, the invention of Claim 14 further requires adjusting means in operable relation with the comparator means for increasing or decreasing the compressive force applied by

a force member against the load cell and thus affecting the tension in the thread . This is not shown or suggested in the thread movement monitoring invention of Rydborn.

That is, Rydborn is concerned with monitoring thread movement. Rydborn does not show or suggest apparatus wherein a comparator generates a command signal that the tension in the thread is not in conformance with the desired tension and adjusting means increases or decreases the compressive force on the thread to adjust the tension in the thread as needed.

Accordingly, Applicant's Attorney submits that Claims 14 and 15 patentably define over the prior art and are in condition for allowance.

Claim 2-5 variously depend from Claim 14 and are submitted as being patentable for the same reason that the base claim from which they depend is patentable.

Conclusion

Claims 3, 7, 9, and 12 are cancelled to advance prosecution. Claim 10 is allowed.


Claims 11 and 13 are amended in a manner suggested by the Examiner and are submitted as being patentable and in condition for allowance. Claims 14 and 15, newly added herein, are submitted as defining over the prior art of record. Claim 14 is essentially original Claims 1 and 3, but rewritten in a manner to more clearly define over the prior art.

This Application, including each of the claims pending (viz., Claims Claims 2, 4- 5, 10- 11, and 13 -15), are submitted as being patentable and in condition for allowance.

A Notice of Allowance is requested.

If the Examiner believes that a telephone conference would advance the prosecution of this application, he is encouraged to contact this Attorney at the number listed below.

Respectfully submitted,



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